

**COLORADO RIVER RECOVERY PROGRAM
FY-2006-2007 PROPOSED SCOPE OF WORK**

Project No.: 124

Duchesne nonnative fish removal, fish community composition, and riffle habitat measurements

Lead Agency: U. S. Fish and Wildlife Service
Colorado River Fishery Project

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Category:

- ☐ Ongoing project
☒ Ongoing_revised project
☐ Requested project
☐ Unsolicited proposal

Expected Funding Source:

- ☒ Annual funds
☐ Capital Funds
☐ Other

I. Title of Proposal: Duchesne nonnative fish removal, fish community composition, and rifle habitat measurements

II. Relationship to RIPRAP:

Green River Action Plan: Duchesne River

III.A.3. Implement and evaluate the effects of viable measures to control negative interactions from nonnative fishes.

I.G. Evaluate and revise as needed, flow regimes to benefit endangered fish populations

III. Study Background/Rationale and Hypotheses

Smallmouth bass *Micropterus dolomieu*, channel catfish *Ictalurus punctatus*, and northern pike *Esox lucius* are exotic, predatory fishes present to abundant in the Duchesne River (Tyus et al. 1982; Cranney 1993). Smallmouth bass were introduced into the Unita River in 1970 by the U.S. Fish and Wildlife Service, with concurrence from the state of Utah and the Northern Ute Indian Tribe, to

provide recreational fishing opportunity (Mullan 1969, 1970). Channel catfish were introduced in the Colorado River Basin in the late nineteenth century and are established in both the mainstem and major tributaries throughout the Green River sub-basin (Karp and Tyus 1990). Northern pike were introduced as a game fish into Elkhead Reservoir in 1977 and have since become established in the Yampa and Green Rivers. Smallmouth bass have been reported to be significant predators on Colorado pikeminnow *Ptychocheilus lucius* in the middle Green River (Crowl 1995) and channel catfish have been identified as a major threat to the recovery of endangered fishes throughout the Upper Colorado River Basin (Tyus and Saunders 1996, Hawkins and Nesler 1991). Smallmouth bass, channel catfish and northern pike in the Duchesne River represent a strategic threat because they provide a source of nonnative predators to a significant portion of the Colorado pikeminnow and razorback sucker *Xyrauchen texanus* nursery habitat in the middle Green River.

In recent years, the Upper Colorado River Endangered Fishes Recovery Program (Program) has initiated nonnative fish control efforts to reduce the impacts on native fishes. Fish reduction efforts for smallmouth bass have been approved for the lower Yampa, Colorado and Green Rivers. In addition, northern pike and smallmouth bass removal has been approved for the middle Yampa River. The timing of this proposal creates a complimentary nonnative fish removal effort (i.e., northern pike and smallmouth bass) with the work planned for the middle Green River.

The Duchesne River has suffered drought conditions during the past several years. Fish communities may have been impacted by the resulting low flows. In addition, new flow regulations have been implemented in the time since previous fish community data were collected. Fish community composition will be evaluated and compared to historical data.

Recent base flow recommendations (Haines and Modde 2003) identified passage needs for endangered fish in the Duchesne River. The goal of these recommendations was to establish Colorado pikeminnow usage of the Duchesne River at historical numbers. Flows are needed to provide ample water for passage, productivity, and habitat requirements of Colorado pikeminnow. The need to ground truth base flow model predictions (noted in the report as imprecise extrapolations) has become a concern.

IV. Study Goals, Objectives, End Product:

Goal - Improve survival of endangered fish in the Lower Duchesne and Green Rivers, monitor the fish community in the Lower Duchesne River, and measure riffle habitat changes since implementation of base flows.

Objectives -

- A. Reduce the abundance of adult smallmouth bass, channel catfish, and northern pike in the Duchesne River reach between the Myton Diversion (rmi 41) and the confluence of the Green River.
 - B. Maintain public support for the Recovery Program by providing angling opportunity to the Ute Tribes' Elders Pond with nonnative fish removed from the Duchesne River.
 - C. Monitor fish composition in the lower Duchesne River
 - D. Evaluate the physical habitat characteristics of riffles and compare to historic data
- V. Study area: Lower Duchesne River (Myton Diversion, rmi 41) to confluence of the Green River on the Northern Ute (Ute) Indian Reservation.
- VI. Study Methods/Approach:

A. Remove nonnative fish

Nonnative fish will be removed from the Duchesne River between the Myton Diversion and the confluence with the Green River. Hard bottom boats or rafts will be used to electrofish each shoreline of the river during spring months when flows are greater than 500 cfs. Two removal passes will be utilized.

The Duchesne River study area will be divided into four reaches (as in 2005) in which all smallmouth bass, channel catfish, and northern pike, will be removed and translocated to Elders Pond on the Ute Reservation. Fish will be stocked according to the Program's Nonnative Stocking Procedures. Fish not stocked will be disposed of in a manner acceptable to the Ute Tribe and the Utah Division of Wildlife Resources (UDWR).

All smallmouth bass, channel catfish, and northern pike captured will be measured (TL) and weighed. Catch per unit of effort will be monitored in all reaches to determine the efficiency of the control program. All endangered fish that are captured will be measured (TL), weighed, scanned for PIT tags, and tagged with new PIT tags as needed. All other fish captured in fish composition reaches (as in 2005) will be measured (TL) and weighed. All capture and length data collected during the sampling effort will be turned over to the Ute Tribe and UDWR.

Ute Tribal involvement will include assistance with field operations, translocation of nonnative fish to Elders Pond, and coordination in acquiring necessary access permits on Tribal lands along the Duchesne River. Because removal of nonnative

game fish may become a controversial issue in Utah, we will participate in and assist with any UDWR or Ute Tribal public informational meetings to provide information relating to game fish removal in the Duchesne and Green rivers.

B. Monitor fish community

In addition to data collected in fish community monitoring reaches, we will collect small-bodied fish using standard and electric seines. Data will be compared to electrofishing data and will lend insight into the entire fish community. Nonnative fish collected in this manner will be euthanized and efficiency will be compared to electrofishing data.

C. Measure riffle habitats

A subset of riffles measured in Haines and Modde (2003) will be measured using the same methods described. Measurements will be taken at low flows (<150 CFS). Data will be analyzed using PHABSIM and compared to the 1997-2000 data.

VII. Task Description and Schedule

Task 1. April through July 2006: Complete two electrofishing passes along the Duchesne River. Transfer smallmouth bass, channel catfish, and northern pike from the Duchesne River to the Ute Tribe. The Ute Tribe will translocate nonnative fish to Elders Pond on the Ute Reservation.

Task 2. May through June 2006: Collect small-bodied fish composition data.

Task 3. June through August 2006: Measure riffle habitats.

Task 4. November 2006 through January 2007: Prepare annual report for the Program, present project findings at the annual Nonnative Fish Workshop.

VIII. FY-2006 Work:

Deliverables/Due Dates: Annual report November 2006

Budget Summary:

SOW 124 FY 2006 - Task Activity	Cost
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Task 1 - Nonnative Fish Removal

Labor	Cost
GS-11 Biologist (\$36.51/hr x 8 hrs/day x 5 days/trip x 2 trips) + (\$54.77/hr x 2 hrs OT/day x 5 days/trip x 2 trips)	\$4,016
GS-8 Fisheries Tech (\$28.18/hr x 8 hrs/day x 5 days/trip x 2 trips) + (\$42.26/hr x 2 hrs OT/day x 5 days/trip x 2 trips)	\$3,099
2 GS-5 Tech (\$21.81/hr x 8 hrs/day x 5 days/trip x 2 trips) + (\$32.72/hr x 2 hrs OT/day x 5 days/trip x 2 trips)	\$4,799
2 GS-5 Technicians trip prep (\$21.81/hr x 8 hrs/day x 2 days/trip x 2 trips)	\$1,396

Subtotal	\$13,310
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Travel, Per Diem, Equipment	Cost
(2 trucks/trip x 250 mi/truck x \$0.405/mi x 2 trips) round trip Vernal to Myton	\$405
Maintentance and equipment repair	\$2,000
Boat gas (12 gal gas/boat x 2 boats/trip x \$2.50/gal x 2 trips)	\$120
Boat oil (2 qts. Oil/boat x 2 boats/trip x \$2.75/qt x 2 trips)	\$22
Per diem (4 people/day x \$25/person x 5 days/trip x 2 trips)	\$1,000

Subtotal	\$3,547
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Task 2 - Fish Composition

Labor	Cost
GS-11 Biologist (\$36.51/hr x 8 hrs/day x 5 days/trip x 1 trip) + (\$54.77/hr x 2 hrs OT/day x 5 days/trip x 1 trip)	\$2,008
GS-8 Fisheries Tech (\$28.18/hr x 8 hrs/day x 5 days/trip x 1 trip) + (\$42.26/hr x 2 hrs OT/day x 5 days/trip x 1 trip)	\$1,550
2 GS-5 Tech (\$21.81/hr x 8 hrs/day x 5 days/trip x 1 trip1) + (\$32.72/hr x 2 hrs OT/day x 5 days/trip x 1 trip1)	\$2,399
2 GS-5 Technicians trip prep (\$21.81/hr x 8 hrs/day x 2 days/trip x 1 trip)	\$698

Subtotal	\$6,655
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Travel, Per Diem, Equipment	Cost
(2 trucks/trip x 250 mi/truck x \$0.405/mi x 1 trip) round trip Vernal to Myton	\$203
Boat gas (12 gal gas/boat x 2 boats/trip x \$2.50/gal x 1 trip)	\$60
Boat oil (2 qts. Oil/boat x 2 boats/trip x \$2.75/qt x 1 trip)	\$11
1 electric beach seine	\$2,000
Per diem (4 people/day x \$25/person x 5 days/trip x 1 trip)	\$1,500

Subtotal	\$3,774
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Task 3 - Measure Riffle Habitat

Labor	Cost
GS-11 Biologist (\$36.51/hr x 8 hrs/day x 5 days/trip x 1 trip) + (\$54.77/hr x 2 hrs OT/day x 5 days/trip x 1 trip)	\$2,008
GS-8 Fisheries Tech (\$28.18/hr x 8 hrs/day x 5 days/trip x 1 trip) + (\$42.26/hr x 2 hrs OT/day x 5 days/trip x 1 trip)	\$1,550
2 GS-5 Tech (\$21.81/hr x 8 hrs/day x 5 days/trip x 1 trip1) + (\$32.72/hr x 2 hrs OT/day x 5 days/trip x 1 trip)	\$2,399
2 GS-5 Technicians trip prep (\$21.81/hr x 8 hrs/day x 2 days/trip x 1 trip)	\$698

Subtotal	\$6,655
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Travel, Per Diem, Equipment	Cost
(2 trucks/trip x 250 mi/truck x \$0.405/mi x 1 trip) round trip Vernal to Myton	\$203
Boat gas (12 gal gas/boat x 2 boats/trip x \$2.50/gal x 1 trip)	\$60
Boat oil (2 qts. Oil/boat x 2 boats/trip x \$2.75/qt x 1 trip)	\$11
Per diem (4 people/day x \$25/person x 5 days/trip x 1 trip)	\$500

Subtotal	\$774
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Task 4 - Data Analysis, summary, report writing, presentations, etc.

Labor	Cost
GS-14 Project Leader (\$59.58/hr x 8 hrs/day x 3 days)	\$1,430
GS-11 Biologist (\$36.51/hr x 8 hrs/day x 5 days)	\$1,460
GS-9 Admin Assist. (\$32.06/hr x 8 hrs/day x 3 days)	\$769
Supplies (Copies, disks, paper, etc.)	\$365
Per diem (1 person/day x \$101/person x 2 days/trip x 2 trips)	\$404
Travel to give presentations and workshops and meetings (1 truck/trip x 275 mi/truck x \$0.405/mi x 2 trips)	\$223
Subtotal	\$4,651
Total	\$39,366

SOW 124 FY 2007 - Task Activity	Cost
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Task 1 - Nonnative Fish Removal

Labor	Cost
GS-11 Biologist (\$38.78/hr x 8 hrs/day x 5 days/trip x 2 trips) + (\$58.17/hr x 2 hrs OT/day x 5 days/trip x 2 trips)	\$4,265
GS-8 Fisheries Tech (\$29.90/hr x 8 hrs/day x 5 days/trip x 2 trips) + (\$44.85/hr x 2 hrs OT/day x 5 days/trip x 2 trips)	\$3,289
2 GS-5 Tech (\$22.46/hr x 8 hrs/day x 5 days/trip x 2 trips) + (\$33.70/hr x 2 hrs OT/day x 5 days/trip x 2 trips)	\$4,942
2 GS-5 Technicians trip prep (\$22.46/hr x 8 hrs/day x 2 days/trip x 2 trips)	\$1,437
Subtotal	\$13,933
Travel, Per Diem, Equipment	Cost
(2 trucks/trip x 250 mi/truck x \$0.430/mi x 2 trips) round trip Vernal to Myton	\$430
Maintenance and equipment repair	\$2,100
Boat gas (12 gal gas/boat x 2 boats/trip x \$2.65/gal x 2 trips)	\$127
Boat oil (2 qts. Oil/boat x 2 boats/trip x \$2.90/qt x 2 trips)	\$23
Per diem (4 people/day x \$27/person x 5 days/trip x 2 trips)	\$1,080
Subtotal	\$3,760

Task 2 - Fish Composition

Labor	Cost
GS-11 Biologist (\$38.78/hr x 8 hrs/day x 5 days/trip x 1 trip) + (\$58.17/hr x 2 hrs OT/day x 5 days/trip x 1 trip)	\$2,133
GS-8 Fisheries Tech (\$29.90/hr x 8 hrs/day x 5 days/trip x 1 trip) + (\$44.85/hr x 2 hrs OT/day x 5 days/trip x 1 trip)	\$1,645
2 GS-5 Tech (\$22.46/hr x 8 hrs/day x 5 days/trip x 1 trip) + (\$33.70/hr x 2 hrs OT/day x 5 days/trip x 1 trip)	\$2,471
2 GS-5 Technicians trip prep (\$22.46/hr x 8 hrs/day x 2 days/trip x 1 trip)	\$719

Subtotal	\$6,967
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Travel, Per Diem, Equipment	Cost
(2 trucks/trip x 250 mi/truck x \$0.430/mi x 1 trip) round trip Vernal to Myton	\$215
Boat gas (12 gal gas/boat x 2 boats/trip x \$2.65/gal x 1 trip)	\$64
Boat oil (2 qts. Oil/boat x 2 boats/trip x \$2.90/qt x 1 trip)	\$12
Per diem (4 people/day x \$27/person x 5 days/trip x 1 trip)	\$1,620

Subtotal	\$1,911
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Task 4 - Data Analysis, summary, report writing, presentations, etc.

Labor	Cost
GS-14 Project Leader (\$63.34/hr x 8 hrs/day x 3 days)	\$1,520
GS-11 Biologist (\$38.78/hr x 8 hrs/day x 5 days)	\$1,551
GS-9 Admin Assist. (\$33.03/hr x 8 hrs/day x 3 days)	\$793
Supplies (Copies, disks, paper, etc.)	\$380
Per diem (1 person/day x \$101/person x 2 days/trip x 2 trips)	\$404
Travel to give presentations and workshops and meetings (1 truck/trip x 275 mi/truck x \$0.430/mi x 2 trips)	\$237

Subtotal	\$4,885
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Total	\$31,457
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IX. Budget Summary

FY 2006	\$39,366
FY 2007	\$31,457

X. References

Cranney, S.J. 1993. Lower Duchesne River fishery investigations _ 1993. Draft Report. Utah Division of Wildlife Resources, Vernal, Utah

Crowl, T.W. 1995. Nonnative fish control report for the Green and Duchesne rivers. RIP Annual Report Meeting. Grand Junction, Colorado

Haines, G. B., and T. M. Modde. 2003. Base flow needs for endangered fish in the Duchesne River. Final Report for the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin. UCRBRIP Project No. 84-5, U.S. Fish and Wildlife Service, Denver, Colorado.

Hawkins, J. A., and T. P. Nesler. 1991. Nonnative fishes in the upper Colorado River basin: an issue paper. Final Report. Colorado State University Larval Fish Laboratory and Colorado Division of Wildlife, Fort Collins.

- Karp, C.A., and H.M. Tyus. 1990. Humpback chub (*Gila cypha*) in the Yampa and Green Rivers, Dinosaur National Monument, with observations on roundtail chub (*G. robusta*) and other sympatric fishes. *Great Basin Naturalist* 50(3):257_264.
- Mullan, J.W. 1969. Uintah and Ouray Indian Reservation Fishery Management Program Annual Report. U.S. Fish and Wildlife Service, Vernal, Utah.
- Mullan, J.W. 1970. Uintah and Ouray Indian Reservation Fishery Management Program Annual Report. U.S. Fish and Wildlife Service, Vernal, Utah.
- Tyus, H.M, B.D. Burdick, R.A. Valdez, C.M. Haynes, T.A. Lytle, and C.R. Berry. 1982. Fishes of the Upper Colorado River Basin: distribution, abundance, and status. Pages 12_70, in W.H. Miller, H.M. Tyus, and C.A. Carlson (eds). *Fishes of the Upper Colorado River System: Present and Future. Fishes of the Upper Colorado River Basin: distribution, abundance, and status.* American Fisheries Society, Bethesda. MD.
- Tyus, H.M. and J.F. Saunders, III. 1996. Nonnative fishes in natural ecosystems and a strategic plan for control of nonnatives in the Upper Colorado River Basin. Draft Report. Center for Limnology, University of Colorado, Boulder, Colorado. For the Recovery Implementation Program for Endangered fish Species in the Upper Colorado River Basin. Cooperative Agreement No. 14-48-0006-95-923, U.S. Fish and Wildlife Service, Denver, Colorado.